Our goal is to provide kid-centric exposure to developmentally appropriate curriculum to enhance a natural interest in learning through play.
What's new and distinguishing about the Learning Range is
THE CONCEPT: Multi-intelligence exposure to various learning styles.
THE CONTENT: Multi-subjects experienced through 6 intelligent learning styles.
THE APPROACH: Play to Learn to Teach with LEGO Values.

- Discover how your child learns best.
- The right learning activities at the right time.
- Cooperative Learning with LEGO Values
- Building knowledge for school readiness

DUPLO® *Inventures*
Design Document
ver. 3.0

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Introduction

High Concept

DUPLO *Inventures* are multi-subject educational titles for young children that are unique because they address a variety of different learning styles, all within the tradition of “Play to Learn” LEGO values.

Mission Statement

INVENTURES is a Multi-Intelligence, Multi-Subject product line using DUPLO that extends the “Play to Learn” approach to “Play to Learn to Teach”. Invent your own learning experience by selecting specific locations, characters and props. Then, explore fun activities with math, language, art and music. Choose from six intelligence types for your learning buddy in one of four subjects. Then, with the knowledge you gain, teach your DUPLO min-fig pals what you've learned to get a fun DUPLO reward.

Learning research indicates that effective learning happens when it's fun and that 85% of the information we retain is the information that we teach to others.

This is the mission of the Inventure Series.

Two products are presently in development for the Fall of 2000 release:
- Preschool for Ages 2 to 4. Working Title: Preschool Inventures
- Kindergarten for Ages 3 to 6. Working Title: Kindergarten Inventures

Executive Summary

The two DUPLO *Inventures* titles (Preschool and Kindergarten) are entering a crowded market where they will face entrenched competitors in the *JumpStart* and Learning Co. product lines.

We can differentiate DUPLO *Inventures* from existing titles and provide superior quality for children by following these steps:

- Each title addresses several basic skills in the core school readiness areas for preschool and academic areas for kindergarten, not just one narrow topic.

- Educational research has established that children have different learning styles, and the degree to which each style is effective varies from child to child. DUPLO *Inventures* present

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basic skills to kids in each of these major learning styles, and lets them practice those skills using a variety of learning style activities. This ensures that a wide variety of children – not just those to whom the activity comes naturally – can benefit from the software.

- The DUPLO *Inventures* products will incorporate a "Play to Learn to Teach" approach. Activities will be included that allow the child to teach one of the characters what they've learned. Research shows that we remember 85% of what we experience and then teach. This approach is unique and helps differentiate the *Inventures* line from the competitors.

- LEGO has a long, rich tradition of providing children with products where exploratory play leads to self-guided learning as well as fun. DUPLO *Inventures* builds on this tradition by allowing free play in many areas of the product. Children can still have fun with the software even if they decide not to do the directed activities.

- Many children are discouraged in educational software by "drill and kill" programs that feature pretty pictures but quickly become monotonous to play. There are no boring, repetitive drills in the DUPLO *Inventures* products because they encourage discovery and exploration.

- LEGO and Stormfront are both known for a tradition of adhering to very high production values. DUPLO *Inventures* will feature high-quality art, sound and music. Particular focus will be placed on interface design to ensure that the target-age children find the products challenging yet easy to learn and use.

- The efficient use of focus groups throughout development to give feedback to the producers and development team will ensure that the design stays on target for the intended audience.

Key Features

- Explore 8 DUPLO environments
- A Multi-Intelligence approach to Multi-Subject learning allows children to explore learning in a variety of styles. Based on the established cognitive research of Howard Gardner, Seymour Pappert and Piaget.
- Age appropriate curriculum. Kids play with Letters, Numbers, Shapes, Colors, Music and Sounds.
- Play-to-Learn-to-Teach methodology (no "drill & kill"). Research suggests that children retain much more of what they've learned if they teach it to someone else.
- Fun to play: Interact with engaging DUPLO characters and explore several DUPLO inspired worlds.
- Rich environments with numerous animations and high image quality. Characters and backgrounds will be pre-rendered using high-resolution 3D models.
- Intuitive interfaces with clear audio and visual feedback, including voice. Early prototyping will be used to thoroughly focus test assumptions about interface and activity design.

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- Runs on both PC and MAC using a single set of assets on a CD-ROM. Works satisfactorily on a minimum system and perform wells on higher end target systems.
- Duplo *Inventures has m*ore activities with a wider content-rich scope than the competition (*Reader Rabbit, JumpStart*)
- Re-usable core technology. Although each product will differ in art, audio, and design based on the activities and content required, one core engine will power both products. The engine will be developed with sequels in mind so that future products can easily fit into the look and feel of this core system.
- Supports LEGO play values of Creativity, Discovery, Empowerment and Fun.

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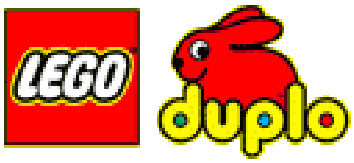

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Product Design

We start our description of the product design with a summary of how we plan to approach the interface. An easy-to-learn interface is crucial for children this young, because any confusion may cause a child to give up and put the game away forever.

After the interface discussion, we summarize the game play and then provide detailed descriptions of the specific characters and activities. Please note that we have not spelled out in exhaustive detail what happens in each activity or area. The next step will be storyboard those areas and define exactly what occurs in each.

It is important to realize that the results of early focus groups will probably change the design in some unexpected way.

Interface Design

The DUPLO *Inventures* products use a “no interface” or “natural interface” method of control. Concepts like menus, options, and load or save are all handled differently than they are in most games. The most common interface elements are described here with examples of how they are to be implemented.

Mouse

These products will use the standard mouse to move a cursor and activate objects on the screen. MOUSE-OVER causes one event; MOUSE-CLICK causes a different event. On mice with multiple buttons, any mouse click will register. We will not differentiate between left and right mouse clicks. Pressing certain keys on the keyboard will be the same as pressing the mouse button.

Feedback

All active on-screen objects have MOUSE-OVER and MOUSE-CLICK animations. The animations will be augmented with sound effects to reinforce their behaviors. Most direction, help, and encouragement will come from character dialog.

Menus

The *Inventures* products do not have formal menus. Objects and speech replace buttons and text.

Load/Save Progress

Each child will sign-in, establishing a session that will be recorded. Leaving the game ends that session with an automatic save-in-progress. Internally, the products will track the minutes of play in each activity and the results of each activity. This allows each child to have personalized and customized play. For focus testing purposes, we will also track clicks and mouse moves to find where the majority of time is spent and where potential confusion may exist.

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Interaction

Objects on the screen will act like interface buttons. Each object will have a HOTSPOT zone that describes its perimeter. Clicking on the object is similar to clicking on a button.

There are three types of objects:

- Activate-able
- Movable
- Combinable

Every object will have a MOUSE-OVER animation to let children know it is active. Objects can be enabled or disabled to allow for both puzzles and story elements to occur as progress is made. Objects can also have idle animations which will occur at random.

Clicking on an activate-able object will cause a screen change, set a state, or begin a dialog or activity. Characters will be activate-able so that they can start dialogs and begin activities once they are clicked on. A door object can be selected to return to the previous screen. Sign post objects allow the child to quickly move to another location.

Movable objects can have deconstruct, move, and build animations. They allow the child to position and carry interactive elements on the screen. Once a moveable object is clicked on, it becomes linked to the mouse cursor. It has been “grabbed”. While the mouse is moving, the moveable object is moving with it. If the child clicks the mouse again on another object, they may interact and combine in some way. If the child doesn’t click on another object, the moveable object will return to its original location or drop wherever the child clicked. It is important for the products to respond to the child’s action and direction.

Combinable objects act as receptacles for moveable objects. They analyze the objects placed in or on them to create new logic states or new objects. Toy boxes, counting bowls, and dump trucks are examples of combinable objects.

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Game Play Summary

Intro

The main characters animate onto the screen and introduce themselves. The characters consist of DUPLO animals for Preschool and mini-figs for Kindergarten. These characters represent the six learning styles contained in each product. Once the introductions are complete, the characters pull out banners with the names of all the kids who have played before. One banner is left blank for newcomers.

Preschool Characters:

- Kinesthetic - The Pony, Buck N. Tickles
- Music - The Singing Panda: Sing-Sing
- Art/Spatial - The Monkey: Looky T. Munkles
- Social - The Leopard Cub: Scamper T. Giggles
- Linguistic - The Giraffe: G. Howdy Cheers
- Math and Logic - The Elephant: Juan

Kindergarten Characters (mini-figs):

- Kinesthetic – Jimmy Nasium
- Music – Mike Griphone
- Art/Spatial – Michelle Angelo
- Social – Mary Ann Bright
- Linguistic – Wordy Wanda Wilson
- Math and Logic – Matty Matics

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Sign-in

The child clicks the banner with his or her name on it, or selects a blank banner if they are new to the product so they can “sign in”. Focus testing demonstrates that a parent or other adult will assist the child on his/her first attempt with the product.

At the sign-in screen, the child or adult can type in the name on the keyboard or click on the appropriate letters on the keyboard depicted on screen. Once the child or parent is finished, they can click on the door object to exit sign-in. Once the child has signed in, their name will appear on the list of banners when the game starts up.

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Play Area

After the child signs in, the game transitions to the Play Area. The Play Area is a scrollable environment in the east-west directions and consists of eight unique environments (full screens) connected together. We use the word, "zone", to represent one of these environments. The child can move his/her mouse to the edge of the screen and the screen will scroll in that direction to the adjacent zone. Signpost objects allow the child to quickly move to another location.

There are three different kinds of zones: Free-Play, Curriculum and Teaching.

Free-Play zones: Of the eight zones, three are Free-Play. Here, the child can freely play with the objects on screen. They can move, combine and play with all the objects on screen in any manner they like. No "curriculum teaching" is intended in these areas. The child is simply, discovering, exploring, manipulating objects and having fun.

Curriculum zones: There are four curriculum zones. Each represents one the four subjects that the products cover: Math, Language, Art and Music.

At each curriculum zone, the main characters and several environment objects are assembled. If the child clicks on one of the characters, the game transitions to one of the Learning Activities (described below). The child can play with the other environment objects in a similar manner to the objects in the Free-Play zones.

The various zones are sometimes based on actual DUPLO sets. Even if based on sets we are extending the functionality by allowing the child to go inside of locations. Zones like the jungle, castle, rocket ship, and tree fort are all based on DUPLO elements but don't actually have a play set in the current product line.

Preschool Curriculum Zones:

- Math (Farm): Exposure to numbers, sequential ordering and function
- Language (Playground): Exposure to letters, alphabetical order and meaning
- Art (Tree Fort): Exposure to shapes, colors and patterns
- Music (Jungle): Exposure to sounds, rhythm, pitch, and music

Kindergarten Curriculum Zones:

- Math (City): Exposure to concepts and application of addition and subtraction, greater than, less than, and equal to. Exposure to numbers from 1 to 100
- Language (Old West): Expanding vocabulary, including nouns and verbs
- Art (Cave Man): DUPLO creativity with color, texture, complex shapes, patterns, and bricks
- Music (Haunted Castle – inspired by DUPLO characters and sets): FUNdamentals of composition, including scale, notes, rhythm, pitch, and styles of music

Teaching zone: There is one Teaching zone in each product. The child is introduced to Clicky and Bricky (age appropriate DUPLO mini-figs). Based on the child's progress in the Learning Activities, Clicky and Bricky will pose problems that reinforce the curriculum already presented

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in the child's prior play. These activities (Teaching Activities) allow the child to "teach" Clicky and Bricky how to do things they've learned during the Learning Activities. In Preschool, these activities occur inside Clicky and Bricky's house. In Kindergarten, they occur inside Clicky and Bricky's rocket ship.

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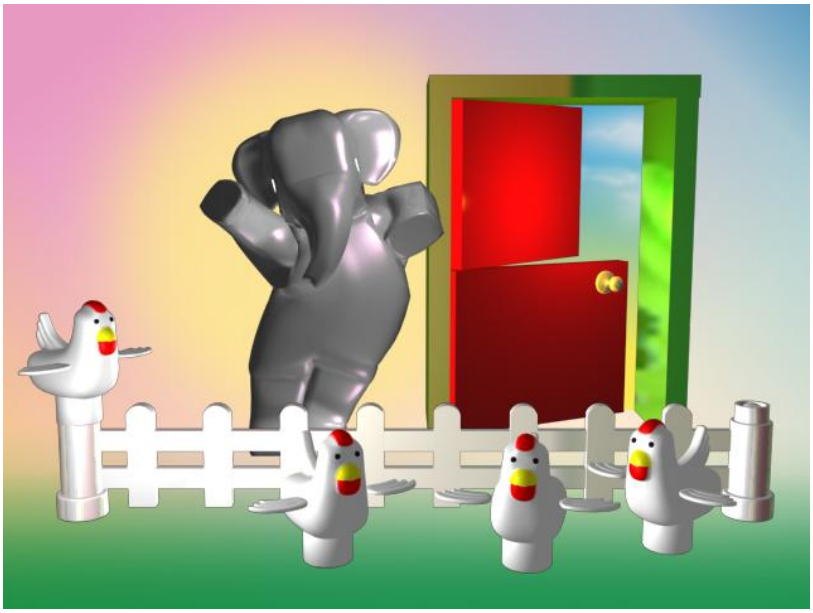
Learning Activity

From a curriculum zone, the child selects a character to play with. The chosen character becomes the child's "buddy" during the activity. After being selected, the buddy character exits the curriculum zone and the game transitions to an activity environment. The buddy character introduces the activity environment and the elements on screen. The child can interact, explore, and manipulate the objects in the environment in free-style play. To start the formal activity, the child clicks on the buddy character a second time.

The curriculum zone defines the subject of an activity while the chosen buddy character defines the learning style. Combined, they set the parameters for the activity. There are a total of 24 Learning Activities (4 subjects with 6 characters each).

Once an activity is completed, the child earns a "toy" reward. These rewards are additional objects that the child can place in the Free-Play zones.

At any time, the child can click on the door object to return to the Play Area in the current curriculum zone.



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Teaching Activity

From the Teaching zone, the child can click on either Clicky or Bricky. If it's the first time the child has done so, Clicky or Bricky will explain that they need help building their train set (Preschool) or rocket ship (Kindergarten).

After the introduction, the product code evaluates the child's current progress and randomly selects a training activity, which reinforces those areas already covered. Clicky or Bricky introduces the activity and asks the child what to do. The child now has the opportunity to "teach" Clicky or Bricky by clicking on the correct objects and thereby "showing" Clicky or Bricky how it's done.

The activity continues until the child clicks on the door object to return to the Play Area.

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Preschool Learning Intelligence characters

Characters in DUPLO *Inventures* follow the Howard Gardner theory of multiple learning intelligence. Research demonstrates that children learn a curriculum using a variety of strategies based on various learning styles and personalities. These types include kinesthetic, musical, artistic, social, linguistic, and mathematical. In the Preschool product these characters are DUPLO animals.

Kinesthetic

The Pony, Buck N. Tickles

Bodily Kinesthetic Intelligence is defined as the ability to unite body and mind to perfect a task. It's about being physical. For example, perform fine and gross motor skills effectively, like touching and being touched while talking.

Examples of kinesthetic personalities are Dancers, Athletes, Mechanics, The "Good-With-Their-Hands" Folks, Surgeons, and Craftspeople as in Sewing or Sculpting. Seeing, touching, and manipulating objects.

LOCATION	APPROACH
MATH	Motion as it relates to timing: 3 jumps are fewer than 5 jumps
LANGUAGE	Motion as it relates to order: dance steps (A, B, C), and instructions which use the words: jump high, low, near, or far
ART	Motion as it relates to art: Kinetic sculpting, action-painting like Jackson Pollack. Color coded steps and color coded sports plays
MUSIC	Motion to Music: jumping on notes, hitting keys, move things around for sound. Buck taps, moves with the beat, fidgeting while the music plays.

By the time the child finishes reading this first sentence, Buck may have already run around the block three times, juggled seven basketballs, wrestled an alligator, played "catch the leaves" with Scamper, and danced to a song sung by Sing-Sing. Buck is unquestionably the strongest, the fastest, the bravest, and the smartest athlete around. Give Buck a problem and he can dance circles around it until it's solved -- and what a dance it is!

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Music

The Singing Panda: Sing-Sing

Musical Intelligence is defined as sensitivity to sound, pitch, melody, rhythm, and song.

Examples of musical personalities are Composers, Conductors, Musicians, and Singers. It's all about sound!

LOCATION	APPROACH
MATH	Numbers as a scale, from a low note (1) to a high one (10). Playing by the numbers Sing-Sing knows when a note is off key; the number is wrong.
LANGUAGE	Rhythm, Rap, and Poetry. Making songs with words. Chords and playing music. Sing-Sing plays musical instruments, remembering melodies with letters
ART	Color-coded play or color themes: blue notes to red hot notes. Sing-Sing collects instruments, songs, and recordings.
MUSIC	Sound patterns. Compose music, sing-alongs, and remembering them. Sing-Sing keeps time with the music.

Sing-Sing, the Panda, was born in the mountains of the far east of DUPLO Town. With eight brothers, nine sisters and five cousins, Sing-Sing grew up in a very musical family. Whistles and grunts of every known note could be heard most days and most nights. Sing-Sing would hum along. As he grew older, he would harmonize with the sounds and soon began to organize everyone, arranging their sounds, making songs. He soon conducted all the roars, oinks, moos and meows into some catchy tunes. Sing-Sing hears sounds in everything and songs in every sound. Even his name has a song in it. Sing-Sing, when hearing notes off key – goes a lil' bananas, wacky, bazoinkers.

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Art/Spatial

The Monkey: Looky T. Munkles

Art/Spatial Intelligence is defined as the ability to visualize and think in multi-dimensions, to modify images, and to decode graphic information.

Examples of artistic and spatial personalities are Artists, Sculptors, Architects, Pilots, and Sailors. It's about being creative and visualizing drawing, sculpting, coloring, painting and taking photos.

LOCATION	APPROACH
MATH	Numbers as symbols, as art. Drawing numbers and pattern matching. Looky enjoys puzzles and mazes; he likes simple maps charts and graphs.
LANGUAGE	The shape and patterns of letters. Drawing and constructing. Looky sees so much in his "mind's eye" before doing a task.)
ART	Images, shapes, and colors, combining and recombining to create stuff
MUSIC	Color coded composition with notes and sounds.

Ever since Looky T. was a fine, young baby monkey, he was an artist. He liked to make and break things and then put them back together again in interesting ways. Give baby Looky a banana, and he makes a hat with the peel, lunch with the fruit, and a painting with the leftovers. As he grew, his projects grew as well.

Is an orange still an orange if you paint it blue? Looky T. would like to find out. What color is the letter "A"? If "2" is blue, what color is "3"? Can grass be plaid? Does everything have color? Does sound have color?

To this day, Looky T. is working on many, many art projects, some of which I can't even begin to describe! You just have to see them. Looky is a monkey always hard at play.

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Social

The Leopard Cub: Scamper T. Giggles

This is defined as the ability to understand and interact effectively with others: perception of self and others, ability to identify and classify objects to as part of a system, and ability to read social situations and feelings of others.

Examples of social personalities are Teachers, Social Workers, Psychologists, Politicians, Actors, Philosophers, and Theologians

LOCATION	APPROACH
MATH	Numbers as units. Match 10 items to the number 10
LANGUAGE	Arrange letters in groups. A,B, C objects
ART	Create groups: patterns using shapes and colors
MUSIC	Groups of notes, sound patterns, families of instruments

What can you say about Scamper that everyone doesn't know already? He knows everybody and everybody knows Scamper. He knows that different people have different ways of seeing and doing things, and that no way is right for "everybody". There is no one right way or one wrong way to solve a problem, Scamper will say "there are only right turns and left turns". Everybody has unique skills, and Scamper T. Giggles believes if everyone can work together, the result is more complete and more fun than if one is working alone. One idea is great but two is even better. Scamper's always pretty happy, wagging his tail, because he knows that if he's happy, you're happy too. Every place Scamper goes is Scamper's home. What's for dinner?

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Linguistic

The Giraffe: G. Howdy Cheers

This is the ability to think in words, language and letters, in written and oral ways.

Examples of linguistic personality are Jokesters, Authors, Poets, Speakers, and News Casters.

LOCATION	APPROACH
MATH	Numbers and math in language with meaning through stories and words. “Two houses past my house are three trees”
LANGUAGE	Letters to words for meaning – simple crossword puzzles, where the content being learned completes a word or an idea.
ART	Names of colours and shapes
MUSIC	Letters and words to music. Rap and poetry

From the valley of verbs, in the meadow of words, comes Cheers, the Giraffe. Cheers loves words and thoughts. The bigger the word, the loftier the thought, the better. It wasn’t always like that, though. A long time ago, Cheers couldn’t get a word in edge-wise. In order to be heard over the noise of the jungle, he’d have to stand on his toes, stretch his head up high, and yell: ” ME! Look at Me!”. He’s say this louder and louder, hoping that somebody would listen to him. Unfortunately, the louder he got, the less attention anybody paid to him, so he tried standing taller and taller and stretching higher and higher. Now everybody could see him, and he’d yell: “Look at me!”

Soon Cheers’s neck grew and grew, and although his height did get everybody’s attention, no one knew what he wanted to say, sop they all walked away. Cheers soon learned that it’s *what* you say and not *how loud* you say it -- or even how high you can jump or how long you can stretch your neck. He learned that words are what everyone listens to, and if you have something to say, words are what you use.

The next time he stood tall and said: “Please, I have something to tell you.” Everyone stopped and listened. Cheers had learned that words are really important. Everything can be described with words, and some cause people to sit up and pay attention a lot better than others..

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Math and Logic

The Elephant: Juan

The section teaches the ability to calculate, quantify, and carry out mathematical operations and logical thought. Logical people reason things out, then act upon them. Examples of mathematical personalities are Scientists, Engineers, Programmers, Bankers, Game players, and Card players.

LOCATION	APPROACH
MATH	Sequential numbering with volume, value, and placement, perhaps a on a chess board or a checkers type game
LANGUAGE	The order of letters. Counting letters
ART	Paint and build by numbers. Saturation of color: 1 is the lightest, 10 the brightest
MUSIC	Play by the numbers. The higher the note, the higher it's value

A very sensible, logical elephant, Juan plays in a land of numbers. He sees numbers in everything. He knows that his home is five trees past Scamper's house and two rocks to the left. He knows that one is fun, but *two* are friends, like you and me. "It's fun to be two, but three's a breeze, and four's even more."
You can always count on Juan.

He's really good with numbers because he likes them all, each and every one. It all started 1 day when he was 2, and he met a 3 -- or at least he said he did. He saw a tree that was shaped like a 3 and before too long he found a 4; 4 bananas hanging on the tree. Reaching way up high, he counted all 4. Over and over, he counted, until it was 5 – 5 o'clock, time for dinner. A 6-course meal he shouted! So he gobbled it up. He went to bed right at 7, fluffing up his pillow to look like a number 8. The next morning, he woke up at 9 and was out the door by 10 to start counting all over again.

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Kindergarten Learning Intelligence characters

Kinesthetic

Bodily Kinesthetic Intelligence is defined as the ability to unite body and mind to perfect a task. It's about being physical and performing fine and gross motor skills effectively. Kinesthetic people like to touch and be touched. Examples of kinesthetic personalities are dancers, athletes, mechanics, the "Good-With-Their-Hands" folks, surgeons, sewers, sculptors, and craftspeople. It is all about seeing, touching, and manipulating objects.

Working Name: **Jimmy Nasium**
Height: Approx. 2 inches
Weight: less than an ounce
Race: Yellow DUPLO
Place of Birth: City of Jumpupan Downz, DUPLO

If you've ever been in DUPLO Town and something or someone zooms by so fast it makes your head spin, chances are you just met Jimmy Nasium on one of his daily jogs around the block. My guess is that what you saw was Jimmy's double somersault, hand-spring, bounce-skip-run. Usually, if you wait a minute or two, he'll come back, give you a big hug, ask you to dance, and then challenge you to a game of brick toss.

He's eager, to say the least. He wants to do and to learn just about anything new as long as he can move around when he does it, because, as Jimmy Nasium says: " The more you know, the more you grow and the more you grow, the more you need to know." And there he goes…

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Music

Musical Intelligence is defined as sensitivity to sound, pitch, melody, rhythm, and song. Examples of musical personalities are composers, conductors, musicians, and singers. It's all about sound!

Working Name: **Mike Griphone**
Height: Approx. 2 inches
Weight: less than an ounce
Race: Yellow DUPLO
Place of Birth: Town of Melody, DUPLO

If you ever find yourself humming a catchy tune and you have no idea where it came from, my guess is you heard it from Mike Griphone. Mike loves the sound of everything, including his own voice. He sings, hums, and plays along with everything he hears, from a fire engine to a piece of toast. He knows how to create music with just about anything, and when it comes to knowing the family of instruments… Why, they invite Mike to every Family reunion and picnic they have. Rumor has it that Mike Griphone knows every song there is or every was and he can could go on singing pretty much for forever. After he finishes a song request, he'll turn and say " I'll be Bach!" and walks humming away.

Art/Spatial

Art and Spatial Intelligence is defined as the ability to visualize and think in multi-dimensions and to modify images and decode graphic information. Examples of mathematical personalities are artists, sculptors, architects, pilots, and sailors. It's about being creative and visualizing drawing, sculpting, coloring, painting, and taking photos

Working Name: **Michelle Angelo**
Height: Approx. 2 inches
Weight: less than an ounce
Race: Yellow DUPLO
Place of Birth: The Town of Hue, DUPLO

"What if?" has got to be Michelle Angelo's favorite expression. "What if I put this there instead of here?" "What if…" and then she'll stop in mid- sentence and ask you what you think, then she'll try that way too. Creativity would be her middle name if it wasn't already "Ann".

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Social

The ability to understand and interact effectively with others. Social people have keen perception of self and others, and the ability to identify and classify objects within a system. People with this personality trait are able to read the social situations of others. Examples of social personalities are teachers, social workers, psychologists, politicians, actors, philosophers, and theologians.

Working Name: **Mary Ann Bright**
Height: Approx. 2 inches
Weight: less than an ounce
Race: Yellow DUPLO
Place of Birth: Buddyville, DUPLO

You know how there are some people who can make you feel good, even when you're feeling really bad. They're just fun to be with. They seem to know exactly what to say and what to do. It just feels good to hang around with them. Well, Mary Ann Bright is one of those people. Chances are she'll invite you into her home and show you her latest additions to one of her cool collections. She'll probably offer you a snack or two and ask, "How are you? I hope you're well" -- which isn't all that unusual except she really means it.

Linguistic

This is the ability to think in words, language, and letters in written and oral ways. Examples of linguistic personalities are jokers, authors, speakers, newscasters, and communicators.

Working Name: **Wordy Wanda Wilson**
Height: Approx. 2 inches
Weight: less than an ounce
Race: Yellow DUPLO
Place of Birth: Verb-burg, DUPLO

Wordy Wanda Wilson always has something to say about everything. Usually, it's very nice. "There are 26 letters in the alphabet, but there's only one 'U'. That is, of course, unless you count the double U, then there are three U's!" and she'll laugh. She loves to laugh, but she loves to play with words and letters even more. When she wears her favorite shirt (the one with the big letter T on the front), she's the first to call attention to it: "It's my favorite!" Yes, Wordy loves words that's for sure. Nouns and verbs are her favorites, because, as Wordy Wanda Wilson says: " Without nouns or verbs, nothing ever happens to anybody or anything." "And by the way", Wordy quickly adds, "without "U" there's no fun at all."

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Math and Logic

This is the ability to calculate, quantify, and carry out mathematical operations and logical thought, and to reason things out and then act upon them. Examples of mathematical personalities are scientists, engineers, programmers, game players, card players, and bankers.

Working Name: **Matty Matics**
Height: Approx. 2 inches
Weight: less than an ounce
Race: Yellow DUPLO
Place of Birth: Counterville, DUPLO

Matty Matics is the kind of guy you can count on. In fact, Matty will often say “You can count on me!” while pointing to his number-emblazoned hat and shirt. In fact, you can count on Matty for all kinds of stuff. Give Matty some numbers, and he’ll add or subtract them any way you want in almost no time at all. If you have any kind of problem, Matty will add up the facts and come to the exact answer -- and he’s almost always right. He settles for nothing less.

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Preschool & Kindergarten Teaching Characters

Bricky and Clicky
Playmates and the best of buddies, Bricky and Clicky like to play. They've known each other for over a gazillion years, because they were both born in DUPLO Town. They know a lot about stuff, but not as much as you do. That's why they really like it when you stop by and play with them. They have a lot to learn; you have a lot to teach. They'll be your friends in Preschool and they'll grow up with you to Kindergarten. There's no difference between work and play when you're with either Bricky or Clicky. Everything they do is just plain fun.

Working Name: **Bricky**
Height: Approx. 2 inches
Weight: less than an ounce
Race: Yellow DUPLO
Place of Birth: DUPLO Town, DUPLO

Bricky is a cool DUPLO boy with a flat top doo (see the Legomaniac as pictured in LEGO catalogs for inspiration). He exhibits age-appropriate, boy play for each SKU. He loves to build and he really loves to deconstruct. Bricky is an aggressive player, but kind of mischievous at times. He is very charismatic, likes to think, and is not afraid of much.

Working Name: **Clicky**
Height: Approx. 2 inches
Weight: less than an ounce
Race: Yellow DUPLO
Place of Birth: DUPLO Town, DUPLO

Clicky is a cool DUPLO girl with a short haircut and a very big heart, who exhibits age-appropriate girl behavior for each SKU. Clicky loves to build things, then save them, then change them all around again. She enjoys fantasy play, role-play, and she is solution oriented. She's a really good friend to have because she knows how to have fun.

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Preschool Learning Activities

Once the child selects a curriculum and learning intelligence buddy, a learning activity begins. The following table sets guidelines for the how the activities will be constructed based on the learning intelligence buddy and specific curriculum.

Preschool Curriculum-Personality Guidelines

	Math Exposure to numbers, sequential order and meaning	**Language** Exposure to letters, sequential order and meaning	**Art** Exposure to colors, shapes and patterns	**Music** Exposure to sounds, rhythm, pitch and music
Kinesthetic The ability to unite body and mind to perfect a task. It's about being physical. Seeing, touching and manipulating objects.	Motion as it relates to timing as in 3 jumps are fewer than 5 jumps	Motion as it relates to order as in dance steps (A, B, C) and instructions as in the use of words: jump high, low, near and far	Motion as it relates to art: Kinetic sculpting, action-painting like Jackson Pollack. Color coded steps and color coded sports plays	Motion to Music: jumping on notes, hitting keys, move things around for sound
Musical Sensitivity to sound, pitch, melody, rhythm and song. It's all about sound!	Numbers as a scale. 1, the lowest note, to 10, the highest. Playing by the numbers (the child should know when a note is off key in part because the number is wrong.)	Rhythm, Rap and Poetry. Making songs with words. Chords and playing music. Remembering melodies.	Color-coded play or color themes: Blue notes to red hot notes.	Sound patterns. Compose music, sing-alongs and memory.
Artistic The ability to visualize and think in multi-dimensions, to modify images and decode graphic information. It's about being creative and visualizing.	Numbers as symbols, as art. Drawing numbers and pattern matching. Puzzles, mazes, simple maps, charts or graphs.	The shape and patterns of letters. Drawing and constructing.	Images, shapes and colors, combining and recombining to create stuff	Color coded composition with notes and sounds.
Social Understand and interact effectively with others. Perception of self and others. Ability to identify, classify objects.	Numbers as units. Match 10 items to the number 10	Arrange letters in groups. A,B, C objects	Create groups: patterns using shapes and colors	Groups of notes, sound patterns, family of instruments
Linguistic The ability to think in words, language and letters, in written and oral ways. Communication	Numbers and math in language with meaning through stories and words. "Two houses past my house are three trees"	Letters to words for meaning	Names of colors and shapes	Letters and words to music. Rap and poetry
Mathematical The ability to calculate, quantify and carry out mathematical operations and logical thought	Sequential numbering with volume, value and placement.	The order of letters. Counting letters	Paint and build by number. Saturation of color: 1 is the lightest to 10	Play by the numbers. The higher the note, the higher it's value

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Preschool Math Curriculum

The curriculum zone for the math activities is set in a farm with a prominent barn. Inside the barn, the child can play with and learn about numbers. In Pre-School number play, the child can learn the relationship between the name of the number, the symbol of the number, and the quantity represented by that number.

Kinesthetic – Count the juggling balls

Buck the pony plays a juggling game in the barn. Once inside the barn, the child sees Buck, the barn door, and several picture-bricks with numbered baskets. Each basket contains a number of objects which matches the number on the outside.

Learning Buddy Activity: Selecting Buck starts the formal activity. He juggles a certain number of objects and asks the child to click on the basket with the same number on it. When the correct basket is clicked, Buck tosses the objects in, counting as he goes, "1…2…3". If the wrong basket is clicked, he lets you know if the basket was too few or too many. At first, there are only three baskets on screen, but slowly the number of baskets grows, increasing the difficulty as the child progresses.

Musical – Count the notes

Sing-Sing the panda plays a counting game in the barn. Once inside the barn, the child sees Sing-Sing, the barn door, and several numbered picture-bricks.

Learning Buddy Activity: After clicking on the panda, he sings notes (no words). A note appears in the air for each note he sings. Then he asks, "How many notes?" If the child clicks on the correctly numbered brick, Sing-Sing sings the same notes using the notes from the instrument playing behind him. If the child clicks on the wrong block, Sing-Sing says "not enough" or "too many." At first, Sing-Sing sings from 1-3 notes, but slowly the number of notes increases as the child progresses.

Artistic – Build a picture of a number with puzzle pieces

Looky the monkey plays a number puzzle game in the barn. Once inside the barn, the child sees Looky, the barn door, and several puzzle pieces.

Learning Buddy Activity: Selecting Looky starts the formal activity. Looky magically draws a number on the screen and puts pictures bricks out that make that shape. The bricks can be assembled like puzzle pieces to make number shapes, "click…click…click, Three". Looky encourages the child to place bricks in the right position. If the wrong space is chosen, the brick goes to the right space automatically. When the child is finished, Looky says, "That's the shape of a number three, whoopee!" The number increases as the child progresses requiring more puzzle pieces to complete. Numbers are 1 to 9. The layout is a three by three grid. The number of pieces required to complete the puzzle is equal to the number shape, so '5' would have five bricks missing from the nine.

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Social – Count the number of matching pictures

Scamper the leopard cub plays a grouping game. Once inside the barn, the child sees Scamper, the barn door, a watering can, and a bunch of seed-packets.

Learning Buddy Activity: Selecting Scamper starts the formal activity. Numbered picture-bricks line the bottom of the screen. Scamper sprinkles seed-packets and tells the child to water them. Several similar plants grow, but there are always some rogue plants. Scamper holds up a picture-brick with one of the plants on it and asks, "Hey, how many plants look like this?" Scamper encourages the child to count up the identical plants that match the number. "1…2…3…That's right there are three ears of corn", he says. The difficulty grows slowly as the child progresses by increasing the numbered picture-bricks and plants.

Linguistic – How many objects are in the story?

G. Howdy the giraffe tells a number story. Once inside the barn, the child sees G. Howdy, the barn door, and several picture-bricks.

Learning Buddy Activity: Selecting G. Howdy starts the formal activity. The picture-bricks on the screen all turn into numbers. G. Howdy begins a story. At several places in the story, G. Howdy stops and asks "…there were some pigs. How many pigs are there?" or a similar question about an object in the story. Selecting a number makes that many objects pop out. "Oh, that's right! There were 1…2…3 pigs…" he says. The difficulty grows slowly as the child progresses by increasing the number range.

Mathematical – Order the numbers sequentially

Juan the elephant plays a number order game. Once inside the barn, the child sees Juan, the barn door, and numbered picture-bricks.

Learning Buddy Activity: Selecting Juan starts the formal activity. Juan puts out several numbered picture-bricks. "These number bricks all go together, can you figure out the order?" says Juan. Arrange the bricks in the right order, and Juan counts them, "1…2…3" Then his trunk stretches over the bricks and grabs a snack. The number rises slowly, gradually requiring more picture bricks and increasing the difficulty.

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Preschool Language Curriculum

The curriculum zone for the language activities is set in children's playground with a prominent tube-crawl. Inside the tube-crawl, the child can play with and learn about letters. In Pre-School letter play, the child can learn the relationship between the name of the letter, the symbol of the letter, and the meaning represented by that letter.

Kinesthetic – Click on the falling letter that matches the chosen one

Buck the pony plays a catching game in the tube-crawl. Once inside the tube crawl, the child sees Buck, the tube-crawl exit, and several lettered balls.

Learning Buddy Activity: Selecting Buck starts the formal activity. He asks the child to pick a certain letter and then lettered balls start dropping from the top of the screen. When the balls touch the floor they roll out a tube hole. Clicking on a ball with the correct letter will cause the balls to stop while Buck congratulates you and asks for a new letter. If the wrong ball is clicked, he lets you know what the name was but the game keeps going. At first, the balls fall very slowly and there are only a few letters, but over time the choices of letters and speed grows, increasing the difficulty as the child progresses.

Musical – Match first letter to initial sounds of objects

Sing-Sing the panda plays a rhyming game in the tube-crawl. Once inside the tube-crawl, the child sees Sing-Sing, the tube-crawl exit, and several picture-bricks. The picture-bricks are decorated with the shapes of letters (example: bmfp, tdnvl, kgsz, wr, aeiou, and cjxhqy). The sounds of the letters match the initial sounds of the object's name.

Learning Buddy Activity: After clicking on the panda the formal activity begins. Sing-Sing will scramble the picture-bricks. Sometimes the vowel is showing and Sing-Sing will ask the child to match a letter to the rhyming object name, "Which letter makes the sound in 'Unicycle'?" for 'U'. Other times the picture-bricks show objects and Sing-Sing will ask, "Which object has an 'Ba' sound?" for ball. Selecting the correct picture-brick moves to the next question. Selecting a wrong picture-brick causes Sing-Sing to show the correct selection. At first there will only be a few picture-bricks to choose from, but slowly the number increases as the child progresses.

Artistic – Paint the letter a certain color

Looky the monkey plays a painting game in the tube-crawl. Once inside the tube-crawl, the child sees Looky, the tube-crawl exit, several paint brushes of primary colors, and various letters on white letter bricks.

Learning Buddy Activity: Selecting Looky starts the formal activity. The various letter bricks disappear, but the brushes remain. Looky magically draws several different sized letter outlines on the screen and asks the child to paint the letter shapes a certain color. If the wrong color is painted, Looky will explain which color it needs to be and flash the correct brush. When the child is finished, Looky says, "That's all the letter 'A's, hooray!" The number of letter outlines and the range of possible letters increase as the child progresses.

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Social – Match letter order

Scamper the leopard cub plays a sequence game. Once inside the tube-crawl, the child sees Scamper, the tube-crawl exit, and several letter bricks.

Learning Buddy Activity: Selecting Scamper starts the formal activity. Scamper scrambles the letters. He then asks for the first letter in the group of letters on the screen and holds up a sample of what the letter looks like. Each letter in order must be moved to Scamper and he will say the letters name as they are collected. If a letter is collected out of sequence Scamper will ask for the correct letter again and flash it. The difficulty grows slowly as the child progresses by increasing the number of letters or starting at a letter other than 'A'.

Linguistic – Find requested letter that matches the first letter of an object in a story

G. Howdy the giraffe makes a custom story. Once inside the tube-crawl, the child sees G. Howdy, the tube-crawl exit, and several picture-bricks.

Learning Buddy Activity: Selecting G. Howdy starts the formal activity. The picture-bricks on the screen all turn to reveal their letters. G. Howdy begins a story. At several places in the story, G. Howdy stops and requests a letter. Selecting one of the letters flips that picture-brick over to reveal an object that is used in the story. If an object is reused in the story the letter flips over to reveal the same picture again. The story continues until a new object is requested. The difficulty grows slowly as the child progresses by increasing the number of picture-blocks and the range of the letters.

Mathematical – Count the letters

Juan the elephant plays a letter counting game. Once inside the tube-crawl, the child sees Juan, the tube-crawl exit, and several letter-bricks and number-bricks.

Learning Buddy Activity: Selecting Juan starts the formal activity. Juan puts out several letter bricks. "How many letter 'A's can you find?" asks Juan. The child counts the number of matching letters and selects the correct numbered picture-brick. If the count is wrong Juan will count them while they flash. The number of letter bricks increases to make it more difficult. Letters that don't match the correct letter can be added to increase the difficulty too. Letters are presented in alphabetical order.

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Preschool Art Curriculum

The curriculum zone for the art activities is set in children's backyard with a prominent tree fort. Inside the tree fort, the child can play with and learn about shapes, colors, and patterns.

Kinesthetic – Make new colors out of primary colors

Buck the pony plays a color mixing game in the tree fort. Once inside the tree fort, the child sees Buck, the tree fort door, and several baskets of colored balls.

Learning Buddy Activity: Selecting Buck starts the formal activity. He puts out a big white brick and holds up a brick that is a secondary color and explains that combining two other colors can make the white brick the same color as the brick he is holding. Once two color balls have been placed Buck will check if it matches his brick. If it matches Buck congratulates you and brings out new bricks. If it is the wrong color Buck will show which two colors makes the color he was looking for, "Yellow and Blue make Green". A variation of this, to increase difficulty, would be to make value important as well. The ball colors may be very "light" and more of certain colors are needed to "darken" the value. To assist children to know the color spectrum the paint pots will be in a rainbow effect so that colors between the pots are the combination of the colors on each side.

Musical – Paint sound effects that vary based on color and position on screen

Sing-Sing the panda plays a musical painting game in the tree fort. Once inside the tree fort, the child sees Sing-Sing, the tree fort door, and several color-coded picture-bricks. The picture-bricks are decorated with the objects that make noise (example: musical instruments, phones, and farm animals).

Learning Buddy Activity: After clicking on the panda the formal activity begins. Sing-Sing will push the picture-bricks to the bottom of the screen and put out a large white canvas. The cursor will change to a paintbrush. Clicking on a picture-brick will change the paintbrush to a matching color. Now the brush can paint on the canvas in that color. As the paint is applied the sound effect of the object that is on the matching picture-brick plays for as long as the mouse button is down. The pitch and duration will change as the brush is moved up, down, left and right on the canvas. Each time the color is changed Sing-Sing will say its name. Sing-Sing also helps to explain how to paint musical colors. Clicking on Sing-Sing while painting will cause Sing-Sing to ask if you want to erase the canvas and start again. The number of colors increases over time to match difficulty.

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Artistic – Build and color objects out of simple shapes

Looky the monkey plays a painting game in the tree fort. Once inside the tree fort, the child sees Looky, the tree fort door, and various shape outlines on picture-bricks.

Learning Buddy Activity: Selecting Looky starts the formal activity. Looky magically draws several different shape outlines on the screen that make a more complex object (a square and a triangle make a house) and asks the child to make the house out of shapes. The shapes may be CLICK-MOVED from the picture-bricks to the outlines and colored by clicking on the placed shape. If the wrong shape or color is painted, Looky will explain and change it. When the child is finished, Looky says, "That's an awesome house!" The number of shape outlines and whether they need to be color correct increase as the child progresses.

Social – Match shape and color

Scamper the leopard cub plays a sorting game. Once inside the tree fort, the child sees Scamper, the tree fort door, and a large box with several slots. Each slot in the box is color-coded.

Learning Buddy Activity: Selecting Scamper starts the formal activity. Scamper puts out a new box. Some of the slots in this box are different shapes in various colors. He then places objects of various shapes and colors on the screen and tells the child to place them into the box in the right slot. Scamper congratulates the child for placing a shape in the correct slot. If the shape is right but the color is wrong or vice versa Scamper will show which slot is the correct one and place it there. The difficulty grows slowly as the child progresses by increasing the number of colors and shapes.

Linguistic – Match 1st letter of object name to object with color coding assistance

G. Howdy the giraffe plays a matching game. Once inside the tree fort, the child sees G. Howdy, the tree fort door, and several color-coded picture-bricks.

Learning Buddy Activity: Selecting G. Howdy starts the formal activity. The picture-bricks on the screen all turn to reveal their objects. G. Howdy holds out a letter brick that matches the first letter of one of the object's name. The letter brick is color-coded to match the color of the correct picture-brick. G. Howdy tells the child to match the letter to an object. "The color is a hint", says G. Howdy. Clicking on a picture-brick flips it over to reveal the letter. If it matches G. Howdy congratulates the child. If it is wrong G. Howdy says, "Try another brick". The difficulty grows slowly as the child progresses by increasing the number of picture-blocks and the range of the colors.

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Mathematical – Paint by number

Juan the elephant plays a paint-by-number game. Once inside the tree fort, the child sees Juan, the tree fort door, DUPLO bricks, and some numbered buckets of paint.

Learning Buddy Activity: Selecting Juan starts the formal activity. Juan puts out black and white outline picture; each area is numbered to match a color on one of the paint buckets. Clicking on a bucket changes the cursor to a paintbrush of that color. Clicking on a numbered picture area fills it with that color. If the wrong color is applied Juan will say, “Those numbers don’t match”, and fill it with the correct color. The number of fill areas and paint buckets rises slowly to increase the difficulty.

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Preschool Music Curriculum

The curriculum zone for the art activities is set in jungle with a prominent cave. Inside the jungle cave, the child can play with and learn about sounds, rhythm, pitch, and music.

Kinesthetic – Match the rhythm

Buck the pony plays a rhythm game in the jungle cave. Once inside the jungle cave, the child sees Buck, the cave door, some DUPLO bricks, and several balls with objects on them. The objects on the balls are all noisy or play musical notes.

Learning Buddy Activity: Selecting Buck starts the formal activity. Buck takes away all the balls and bricks but one set. This time the ball only bounces up and down under the brick. He stomps his foot in a rhythm and asks if you can match it with the ball by moving the brick up or down. As you move the brick he will say “Up” or “Down” until the rhythm matches. If you click on the ball the sound it makes and picture on it will change but the rhythm will remain constant. The rhythm will speed up after playing this game several times to make things more difficult.

Musical – Match sung note

Sing-Sing the panda plays a singing game in the jungle cave. Once inside the jungle cave, the child sees Sing-Sing, the jungle cave door, and picture-brick with a musical note. The picture-brick is also labeled with the singing note (Do, Ra, Mi, Fa, So, La, or Te).

Learning Buddy Activity: After clicking on the panda the formal activity begins. Sing-Sing will sing a note and ask the child to move the picture-brick to the correct position. As the note is moved around the screen the label changes to show what will be sung. When the note is dropped Sing-Sing will sing the note. If the notes match Sing-Sing will congratulate the child. If the notes don’t match he will move the note to the correct position explaining if the note was higher or lower.

Artistic – Make color coded music

Looky the monkey composes music using DUPLO bricks in the jungle cave. Once inside the jungle cave, the child sees Looky, the cave door, a musical staff with a clef, and several colored DUPLO bricks.

Learning Buddy Activity: Selecting Looky starts the formal activity. Looky will paint the staff with colors that match the bricks. The child must arrange the bricks to match the colors on the staff. When all the bricks are in place pressing the clef starts the music. A little bug runs along the bricks and the notes play as he goes. If the music is correct the child will hear music from a short tune. If the music is wrong Looky will correct it and play the music over again. The number of notes and therefore bricks required will increase as the child progresses.

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Social – Guess machine vs. animal sounds

Scamper the leopard cub plays a sound grouping game. Once inside the jungle cave, the child sees Scamper, the jungle cave door, and two buttons with the words 'machine' and 'animal'.

Learning Buddy Activity: Selecting Scamper starts the formal activity. Scamper plays a sound; the child can not see the object that makes the sound. The sound is either a machine or an animal. Scamper encourages the child to pick the one they think it is. Once the child chooses one or the other, the object is revealed and the sound is made again. Scamper congratulates the child for choosing the correct type and the activity starts again. If the wrong type is selected Scamper explains why and starts again. The sounds get more difficult over time as the child progresses.

Linguistic – Click on the correct letters in sync with the beat

G. Howdy the giraffe plays a rapping game. Once inside the jungle cave, the child sees G. Howdy, the cave door, and several letter bricks.

Learning Buddy Activity: Selecting G. Howdy starts the formal activity. G. Howdy says several letters to the beat of the music. The child must hit the letters in the same order "A...A...B...B" to keep the song going. If the order is wrong the music stops, otherwise the G. Howdy will sign a new line of letters to match. The difficulty grows slowly as the child progresses by increasing the number of letter bricks and length of sequence. Different sequences, like alphabet order or vowel order, may be used to reinforce different letter patterns.

Mathematical - Match the number of drum beats

Juan the elephant plays a count the drum beats game. Once inside the jungle cave, the child sees Juan, the cave door, and some jungle drums. Juan has his own drum.

Learning Buddy Activity: Selecting Juan starts the formal activity. Juan says, "Hit the drums the same number of times I do" and then counts out some number of beats. When the child clicks the drums Juan will count along. If the child stops too soon Juan will say "More". If the child passes the count Juan will say "Too many". The number of beats will increase as the child progresses.

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Preschool Teaching Zone

The teaching zone for the teaching activities is set in a suburban, neighborhood house. Inside the house, the child can play with and teach Clicky or Bricky about math, language, art and music.

Each time the child selects to enter the house with Clicky or Bricky the game will evaluate the child's progress and choose randomly from the list of curriculum zones they have visited. Then Clicky or Bricky will ask for help in doing an activity where the child has already had some exposure to the concepts. For example, if the child has visited the math curriculum zone, Bricky may ask for help counting. Teaching is accomplished by demonstration and helping.

Bricky and Clicky want to build a DUPLO train and watch it go. When the child has successfully completed each of the teaching activities, the train will be complete and a reward animation will occur.

Math

Help the kids count the cars to make the train.

Language

Help the kids arrange the cars in alphabetical order.

Art

Help the kids put signs of various shapes and colors on to the track.

Music

Help the kids pick the correct sound to make the train go toot-toot and chugga-chugga-chugga.

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Kindergarten Learning Activities

Once the child selects a curriculum and learning intelligence buddy, a learning activity begins. The following table sets guidelines for the how the activities will be constructed based on the learning intelligence buddy and specific curriculum.

Kindergarten Curriculum-Personality Guidelines

	Math Exposure to concepts and application of addition and subtraction, greater than, less than, and equal to. Exposure to numbers from 1 to 100	**Language** Expanding vocabulary, including nouns and verbs	**Art** DUPLO creativity with color, texture, complex shapes, patterns, and bricks	**Music** FUNdamentals of composition, including scale, notes, rhythm, pitch, and styles of music
Kinesthetic The ability to unite body and mind to perfect a task. It's about being physical. Seeing, touching and manipulating objects.	Motion as it relates to timing as in 3 jumps are fewer than 5 jumps, summing scores to 100, greater/less than tests	Motion as it relates to the use of words: jump high, low, near, far, fast and slow	Motion as it relates to art: Kinetic sculpting, action-painting like Jackson Pollack. Color coded steps and color coded sports plays	Motion to Music: jumping on notes, hitting keys, move things around for sound, dancing
Musical Sensitivity to sound, pitch, melody, rhythm and song. It's all about sound!	Numbers as a scale. 1, the lowest note, to 10, the highest. Playing by the numbers (the child should know when a note is off key in part because the number is wrong.) Detecting if a note is higher or lower by pitch.	Rhythm, Rap and Poetry. Making songs with words. Chords and playing music. Remembering melodies. Rhyming words.	Color-coded play or color themes: Blue notes to red hot notes. Using art effects to create a music video.	Sound patterns. Compose music, sing-alongs and memory.
Artistic The ability to visualize and think in multi-dimensions, to modify images and decode graphic information. It's about being creative and visualizing.	Numbers as symbols, as art. Drawing numbers and pattern matching. Puzzles, mazes, simple maps, charts or graphs. Using math to measure art.	Adjectives , using descriptive terms for shapes, colors and patterns.	Images, shapes and colors, combining and recombining to create stuff. Flip book style animation	Color coded composition with notes and sounds.
Social Understand and interact effectively with others. Perception of self and others. Ability to identify, classify objects.	Numbers as units. Match 10 items to the number 10. Grouping by quantity, greater/less than relationships	Grouping words by type (verb, noun, adjective)	Create groups: patterns using shapes and colors, aesthetics as related to style and complementary, clashing, harmonizing colors	Groups of notes, sound patterns, family of instruments
Linguistic The ability to think in words, language and letters, in written and oral ways. Communication	Numbers and math in language with meaning through stories and words. Names of numbers as words	Using verbs and nouns to make short stories.	Names of colors and shapes, artistic descriptive words used to describe the look and feel of a scene	Words to music. Rap and poetry
Mathematical The ability to calculate, quantify and carry out mathematical operations and logical thought	Simple equation solving. Balancing equations. Counting to 100.	The order of letters. Counting letters	Paint and build by number. Saturation of color: darkest to lightest as a number, RGB values	Play by the numbers. The higher the note, the higher it's value. Rhythm as a value. Sliders for volume, pitch, duration, and beat

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Kindergarten Math Curriculum

The curriculum zone for the math activities is set in a city with a prominent toy store. Inside the toy store, the child can play with and learn about math. In kindergarten math play, the child can learn the numbers 1 to 100 and simple arithmetic like addition and subtraction.

Kinesthetic – Count up to a number

Jimmy Nasium plays a basketball jumping game in the toy store. Once inside the toy store, the child sees Jimmy, the toy store door, a scoreboard, a basket, and several numbered picture-bricks (25, 10, and 5).

Learning Buddy Activity: Selecting Jimmy starts the formal activity. He asks the child to pick numbers that will make him jump to reach some score. “How high do I have to jump to get 65 points?” asks Jimmy. Each time a number brick is picked Jimmy jumps and scores that many points. He tells you the total and how many more he needs. The score is also shown on the scoreboard. When the total would exceed the score Jimmy says, “That would be too high, pick lower”. The combination of numbers must always have a small enough low number to allow the last jump to be made exactly. At first, the score can be made in one jump, but over time the number of times Jimmy must jump goes up, increasing the difficulty as the child progresses.

Musical – Choose which note is higher or lower by pitch and volume

Mike Graphone plays a sound game in the toy store. Once inside the toy store, the child sees Mike, the toy store door, a numeric readout, and two picture-bricks with arrows on them.

Learning Buddy Activity: Selecting Mike starts the formal activity. He makes the first sound and the readout shows the volume or pitch of the sound. He then makes a second sound with the readout once again showing the volume or pitch. He then asks the child which sound is higher or lower. If the child chooses incorrectly, Mike repeats the sounds and explains which one was higher or lower. Difficulty can be increased making the sounds closer together.

Artistic – Add and subtract to help a frog capture a bug

Michelle Angelo plays a frog jumping game in the toy store. Once inside the toy store, the child sees Michelle, the toy store door, a pond with lily pads, a frog, and two paint buckets. The buckets are red with a backward arrow and blue with a forward arrow.

Learning Buddy Activity: Selecting Michelle starts the formal activity. The frog is smart and jumps certain directions based on colors. For example, the blue paint bucket will cause the frog to jump 3 pads forward. The red paint bucket will cause the frog to jump back 2 pads. The goal is to catch the bug that’s over one of the Lilly pads. For example, if the bug is on the 7^{th} pad, the child would need to click blue bucket three times to get to the ninth pad and then click the red bucket once to go back to the 7^{th}. Adding more buckets and setting harder combinations will increase difficulty.

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Social – Play a simple board game with Michelle

Mary Ann Bright plays a board game using numbers in the toy store. Once inside the toy store, the child sees Michelle, the toy store door, a game board, and a spinner. The spinner has several different DUPLO bricks and the number of studs determines the number of spaces moved.

Learning Buddy Activity: Selecting Mary Ann starts the formal activity. Mary Ann explains the game and that clicking the spinner determines the number of spaces you can move toward the finish of the board game. The board has an S-curve shape and several spaces have bonuses or penalties. Landing on a bonus makes the token move forward a few extra spaces as indicated on the space. Landing on a penalty makes the token move backward a few extra spaces as indicated on the space. The child takes a turn and then Mary Ann takes a turn and the winner is the one who gets to the finish space first.

Linguistic – Match word with the number

Wordy Wanda Wilson plays a word number matching game in the toy store. Once inside the toy store, the child sees Wordy Wanda, the toy store door, and several picture-bricks. Some of the picture bricks have a number and some have a word or the name of the number. Doing a MOUSE-OVER on any picture-brick causes Wordy Wanda to say the name.

Learning Buddy Activity: Selecting Wordy Wanda starts the formal activity. Wordy Wanda explains how to match number symbols with number words. She says, “Click on two that match until all the bricks are connected to their partner”. The children can CLICK-MOVE any picture-brick onto a matching picture-brick to combine them if they match. Adding more picture-bricks will increase difficulty.

Mathematical – Simple adding and subtracting

Matty Matics plays with a DUPLO calculator in the toy store. Once inside the toy store, the child sees Matty, the toy store door, and a large DUPLO calculator.

Learning Buddy Activity: Selecting Matty starts the formal activity. Matty shows the children how to play with the calculator. The equations shown in the calculator display have a missing entry. Clicking keys on the calculator will put that number into the equation. Pressing the “GO” button checks to see if it is correct. If it is right, the calculator will play a little tune. If it is wrong, the calculator will buzz and Matty will show how to solve the equation. The numbers will grow larger to increase difficulty. Equations will be quite simple:

```
  2          4
 +2          -
-----      -----
            1
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Kindergarten Language Curriculum

The curriculum zone for the language activities is set in the old west with a prominent market place. Inside the market place, the child can play with and learn about language. In kindergarten word play, the child can learn about nouns, verbs and descriptive adjectives.

Kinesthetic - Click on location defined by OVER, UNDER, FAR, NEAR etc

Jimmy Nasium plays a soccer game in the market place. Once inside the market place, the child sees Jimmy, the market place door, a window, a barrel, a table, and soccer ball.

Learning Buddy Activity: Selecting Jimmy starts the formal activity. Jimmy says, "I'm a great soccer player. I can kick it anywhere but I need your help." Jimmy will ask the child to click on the location where he wants to kick the ball. For example, Jimmy asks, "I want to kick it UNDER the table. Where is that?" The child will then need to click under the table. Clicking on the wrong location will cause the right location to highlight and Jimmy will kick the ball there.

Musical – Find the rhyming words

Mike Graphone plays a rhyming game in the market place. Once inside the market place, the child sees Mike, the market place door, and several picture-bricks.

Learning Buddy Activity: Selecting Mike starts the formal activity. He explains that "Some of the objects rhyme, can you match the rhyming words". Mike will say its name as the child MOUSE-OVERS a picture-brick. The picture-bricks that rhyme can be CLICK-MOVE together and will combine. Once the pictures are combined Mike will say their names together during MOUSE-OVER. Choosing harder rhymes will increase difficulty.

Artistic – Match word and color

Michelle Angelo plays a coloring game in the market place. Once inside the market place, the child sees Michelle, the market place door, several word bricks, and cans of paint. The paint is primary colors and some special Michelle paint that paints circles, triangles and squares. The word bricks have the words blue, yellow, red, circle, square, and triangle.

Learning Buddy Activity: Selecting Michelle starts the formal activity. As the child MOUSE-OVERS a word brick Michelle will say the word. Michelle tells the child "Paint the 'blue' word brick a blue color". The child can then click on a paint bucket to change the cursor to a brush with that color (or shape) paint. Clicking on a brick with the appropriate paintbrush will make that brick that color (or textured shape). Adding more colors or shapes will increase difficulty.

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Social - Sort objects by large and small

Mary Ann Bright plays a grouping game in the market place. Once inside the market place, the child sees Mary Ann, the market place door, and several barrels.

Learning Buddy Activity: Selecting Mary Ann starts the formal activity. Mary Ann puts out several objects and then labels the barrels with words that describe those objects. Mary Ann says, “Put all the Big objects in the BIG barrel and all the small objects in the SMALL barrel”. Mary Ann will say its label when a child MOUSE-OVERS a barrel. Each of the objects can be CLICK-MOVED to the appropriate barrel. Adding more barrels, or kinds of objects, will increase difficulty.

Linguistic – Create short story by defining WHO, WHAT, WHERE

Wordy Wanda Wilson makes up stories in the market place. Once inside the market place, the child sees Wordy Wanda, the market place door, and several labeled barrels. The labels say WHO, WHAT, and WHERE. The WHO barrel contains picture-bricks with various people (nouns). The WHAT barrel contains various picture-bricks with activities (verbs). The WHERE barrel contains various picture-bricks with icons of locations (nouns).

Learning Buddy Activity: Selecting Wordy Wanda starts the formal activity. Wordy Wanda tips out the WHO barrel and ask the child to “Choose who should this story be about?” The child selects one. She then tips the WHAT barrel out and asks “What are they doing?” Again, the child chooses only one. Then she asks, “Where are they at?” Once the last picture-brick is selected Wordy Wanda will tell a story “Once upon a time Scamper, chased leaves, in Duplotown.” Adding more barrels to make the story longer will increase difficulty.

Mathematical – Solve simple math word problems

Matty Matics plays with a solves simple word problems in the market place. Once inside the market place, the child sees Matty, the market place door, and a barrel.

Learning Buddy Activity: Selecting Matty starts the formal activity. Matty puts out some numbered picture-bricks and pops some objects out of a barrel. Once the objects are out he states the problem “If I have three apples and then get two more apples, how many apples do I have all together now?” The child does the math and selects a picture-brick with the correct answer. Clicking on Matty repeats the question. The quantities are on the screen and can be counted easily to get the answer.

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Kindergarten Art Curriculum

The curriculum zone for the art activities is set in the prehistoric past with a prominent caveman home. Inside the cave, the child can play with and learn about various types of art in a DUPLO way. In kindergarten artistic play, the child can learn about animation, painting, and use of colors.

Kinesthetic – Direct a bug through a maze

Jimmy Nasium paints a picture using a bug in the cave. Once inside the cave, the child sees Jimmy, the cave door, and a bug climbing on the wall.

Learning Buddy Activity: Selecting Jimmy starts the formal activity. Jimmy says, "That's a prehistoric paintbrush bug. If you chase it, it will paint on the wall. Try and get it through the maze" The bug makes curvy colored line wherever it walks. Moving the cursor close to it will make it run away. The child will need to herd the bug through the maze to the finish. Clicking on Jimmy will start a new maze. Clicking while chasing the bug will change its color and the line its painting.

Musical – Make a simple music video

Mike Graphone makes a music video in the cave. Once inside the cave, the child sees Mike, the cave door, the cave wall, and several stamp pads. There is also a record and play button.

Learning Buddy Activity: Selecting Mike starts the formal activity. He explains that "You will make a music video using the stamp pads, to begin press the RECORD button. To see your music video press the PLAY button. When the child clicks the RECORD button Mike starts playing music. If the child clicks on Matt again the music will change. Clicking a stamp pad will change the cursor into that shape. It may be stamped onto the cave wall as many times as the child wishes. After some predetermined time or when the child presses PLAY the cave wall will clear and the music and stamping action will be replayed synchronized the way the child intended. A sample video will be present the first time the child enters this activity.

Artistic – Make an animal picture out of animal parts

Michelle Angelo plays an animal picture game in the cave. Once inside the cave, the child sees Michelle, the cave door, and three buckets.

Learning Buddy Activity: Selecting Michelle starts the formal activity. She explains that "You can make any animal you want out of these parts. Put them together to make fantastic animals." On the bottom of the screen are three buckets. The buckets contain (head, body and tail) cutouts of traditional animals (lions, zebras, etc.) The child can click on a bucket to spill the contents. The child can then assemble the parts (head, body and tail) to make unique, animal shapes. Clicking on Michelle will clear the last picture.

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Social – Evaluate the emotion of facial expressions

Mary Ann Bright plays a face recognition game in the cave. Once inside the cave, the child sees Mary Ann, the cave door, and several facial expression picture-bricks.

Learning Buddy Activity: Selecting Mary Ann starts the formal activity. Mary Ann shows two pictures with different facial expressions. She then asks, "Which one is happy?", If the child clicks on the correct face, Mary Ann says "Yes. That face looks happy!". If the child clicks on the incorrect face, Michelle will say "Actually, that face looks sad. This one is happy!" More complex emotions and subtler distinctions can make the activity more difficult.

Linguistic – Draw a letter

Wordy Wanda Wilson helps kids make letter shapes in the cave. Once inside the cave, the child sees Wordy Wanda, the cave door, and a cave wall. The cursor is a black paintbrush. To paint with this paintbrush the child must hold the mouse button down while moving it.

Learning Buddy Activity: Selecting Wordy Wanda starts the formal activity. Wordy Wanda draws a dotted letter shape on the cave wall and tells the child to trace it with the paintbrush. Clicking on Wordy Wanda makes her draw a new letter shape. While the child is drawing Wordy Wanda describes the letter and slowly draws it next to the dotted shape, "The letter T is two long lines, one flat on top and one straight down the middle".

Mathematical – Connect the dots

Matty Matics plays a connect the dot game in the cave. Once inside the cave, the child sees Matty, the cave door, and a connect the dot picture.

Learning Buddy Activity: Selecting Matty starts the formal activity. Matty explains that to complete the picture, the numbers must be clicked in order. If the child clicks on the correct number, the outline of the picture extends. If not, Matty explains which one is correct and outline is drawn in. More dots are used to increase difficulty.

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Kindergarten Music Curriculum

The curriculum zone for the art activities is set in the haunted castle with a prominent tower spire. Inside the tower, the child can play with and learn about various types of music and sound in a DUPLO way. In kindergarten musical play, the child can learn about rhythm, waveforms, and musical instruments.

In true DUPLO style there is no wrong way to do music and sound. The activities are simply an exploration into different ways of doing musical activities.

Kinesthetic – Dance to the beat

Jimmy Nasium dances to the beat in the tower. Once inside the tower, the child sees Jimmy, the tower door, and large red button.

Learning Buddy Activity: Selecting Jimmy starts the formal activity. Jimmy says, "Some music is going to play, to make me dance press the big red button to the beat of the music". The button will flash at a certain rate that is timed to the beats in the music. If the child continues to press the button Jimmy will do a little dance. If the clicks are off time or don't happen, Jimmy will stand still. Clicking Jimmy can change the music and start over. The music will beat faster to increase difficulty.

Musical – Simon game to learn a DUPLO musical instrument

Mike Graphone plays Simon in the tower. Once inside the tower, the child sees Mike, the tower door, and a large DUPLO musical instrument.

Learning Buddy Activity: Selecting Mike starts the formal activity. He explains that "I'll make a tune and you copy it!" The instrument plays several notes in succession. The child is asked to repeat the note sequence. If the incorrect note is chosen, the correct note plays and the sequence is repeated. More notes are added to make the activity more difficult.

Artistic – Play with a sound visually

Michelle Angelo plays with sound in the tower. Once inside the tower, the child sees Michelle, the tower door, a waveform display, and three sliders.

Learning Buddy Activity: Selecting Michelle starts the formal activity. She explains that "You can change how sound plays by changing how it looks.". Three sliders allow the child to change volume, pitch and duration. As the child plays with the sliders the graphic of the sound changes similar to a sound editing program. The child can click on PLAY to hear what the modified sound sounds like. Clicking on Michelle will change the sample used.

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Social - Connect sound to instrument

Mary Ann Bright plays a musical instrument grouping game in the tower. Once inside the tower, the child sees Mary Ann, the tower door, and several musical instruments of different families. There are percussion, wind, and string instruments.

Learning Buddy Activity: Selecting Mary Ann starts the formal activity. Mary Ann tells the child to listen to each kind of instrument and decide which ones go together. She draws two lines to divide the screen into sections and puts one instrument at the bottom of each section which is outlined and can't be moved. "Play the instruments at the bottom of each section and place the ones like it in the same section", says Mary Ann. MOUSE-OVER on the outlined instruments makes a sound that is typical and in the same note as all the instruments in its family. Clicking on an outlined instrument cause Mary Ann to tell you about that family of instruments. The mixed up instruments can be CLICK-MOVED into the appropriate sections. MOUSE-OVER makes the instrument play its sound.

Linguistic – Make rap type music with word sounds

Wordy Wanda Wilson makes a wacky word rap in the tower. Once inside the tower, the child sees Wordy Wanda, the tower door, and several picture-bricks with various object on them.

Learning Buddy Activity: Selecting Wordy Wanda starts the formal activity. Wordy Wanda says, "I will say the name of the objects as fast as you can click on them". A back beat starts to set the rap to music and as the child clicks on picture-bricks Wordy Wanda says them. The sound is something like the old Max Headroom voice effect. "G…G…Goat, Door..Door, Book, Door, Goat" If the child clicks on a brick and holds it the sound will repeat when the end is reached. If the brick is multi-clicked the sound will stutter. Clicking on Wordy Wanda will start a different back beat.

Mathematical – Play with a sound mixer

Matty Matics plays with a mini-mixing studio in the tower. Once inside the tower, the child sees Matty, the tower door, a mixing console. The mixing console has three slider bars, one for each track (instrument) in the music. The slider buttons have an icon that matches the type of sound they control, drums for drums, guitar for guitars, and piano for pianos.

Learning Buddy Activity: Selecting Matty starts the formal activity. Matty explains that mixing music means controlling the volume of each piece of the music. Matty says, "Slide the drum, guitar, and piano up and down to change the volume of each during the music." The music begins and as the sliders are moved that track of the music goes louder or softer based on the slider position. Clicking Matty will start a new musical selection.

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Kindergarten Teaching Zone

The teaching zone for the teaching activities is set in a futuristic science laboratory with a prominent rocket ship. Inside the rocket ship, the child can play with and teach Clicky or Bricky about math, language, art and music.

Each time the child selects to enter the house with Clicky or Bricky the game will evaluate the child's progress and choose randomly from the list of curriculum zones they have visited. Then Clicky or Bricky will ask for help in doing an activity where the child has already had some exposure to the concepts. For example, if the child has visited the math curriculum zone, Clicky may ask for help with addition and subtraction. Teaching is accomplished by demonstration and helping.

Clicky and Bricky are building the rocket ship and want to take a trip to the moon. When the child has successfully completed each of the teaching activities, the rocket will be complete and a reward animation will occur.

Math

Help fill the fuel tanks by teaching the kids how to calculate the correct mixture of fuel components.

Language

Help the kids learn to read the various buttons on the control panel of the rocket.

Art

Help the kids to design the flight suits and logos used for the trip.

Music

Help the kids build the sound effect that will play when the engines start and the rocket blasts off.

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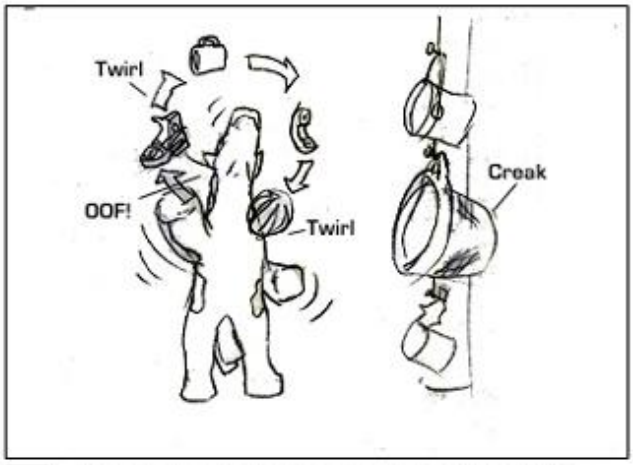
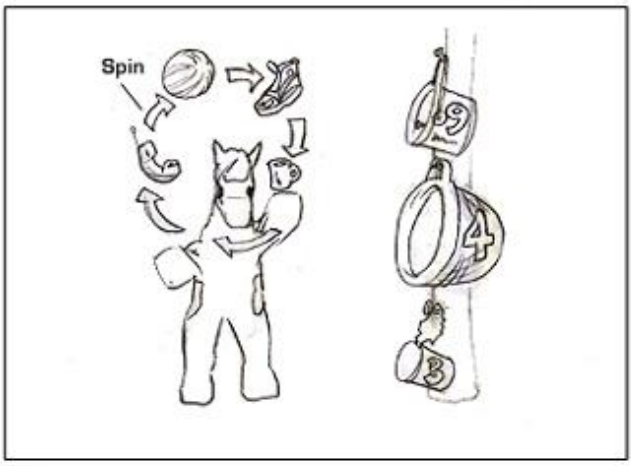
Appendices

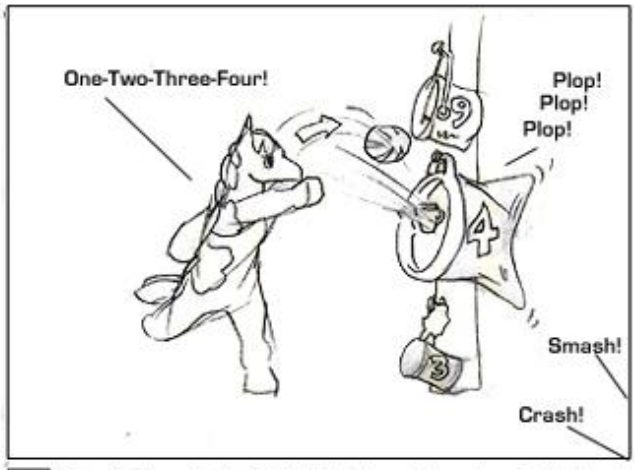
Appendix A: Sample Activity Storyboards



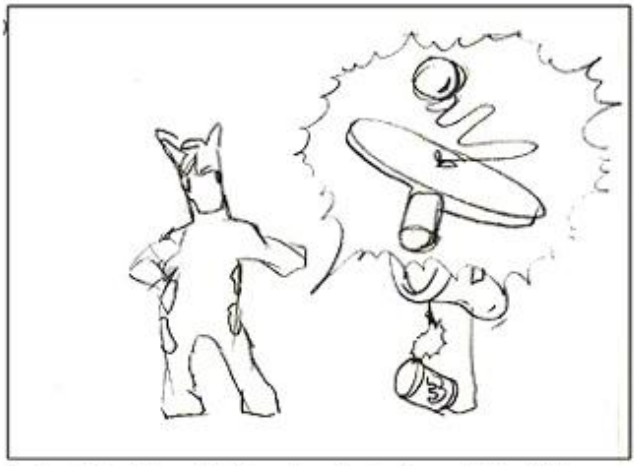
1 Buck the pony is juggling some things. He's not the best juggler in the world. But then again he's a horse! "Boy this sure looked easy when Munkles did it. Whew!"



2 "I know I can get the hang of this, if you tell me how many things I'm juggling!"



3 "Four is abosolutly right! Watch me throw 'em in the basket!" Oops, missed that one. Drat, there goes another! Gotta do something about improving my aim! Oops."



4 "Terrific work! You win a fantastic paddle ball. I'll bet you'll have a lot of fun with this in Duploland!"

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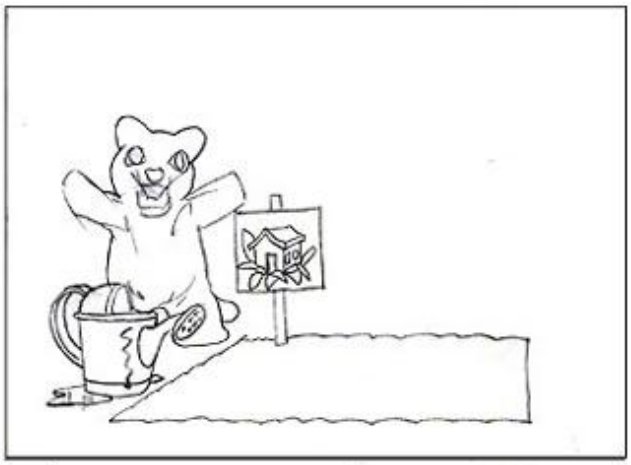
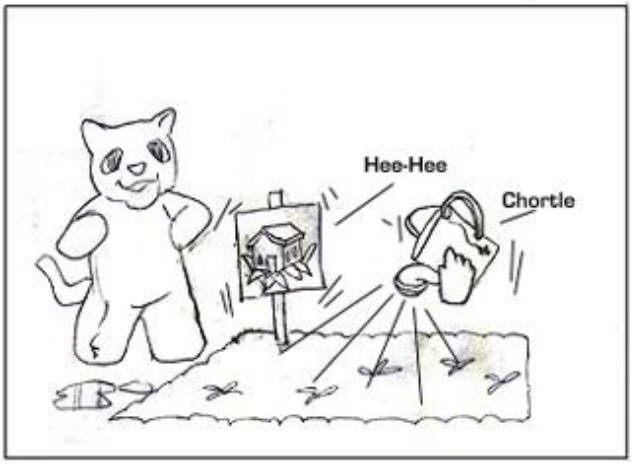
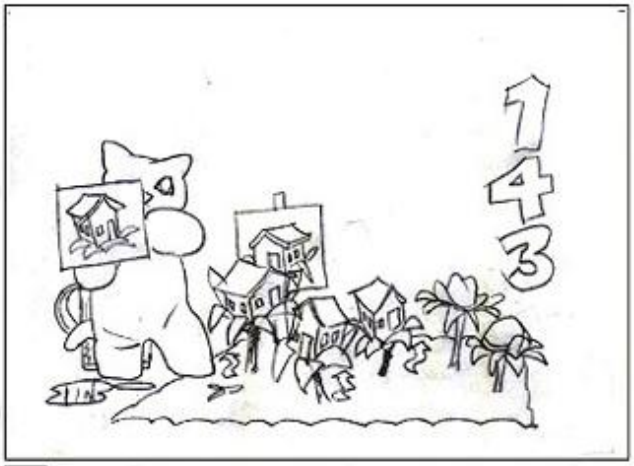


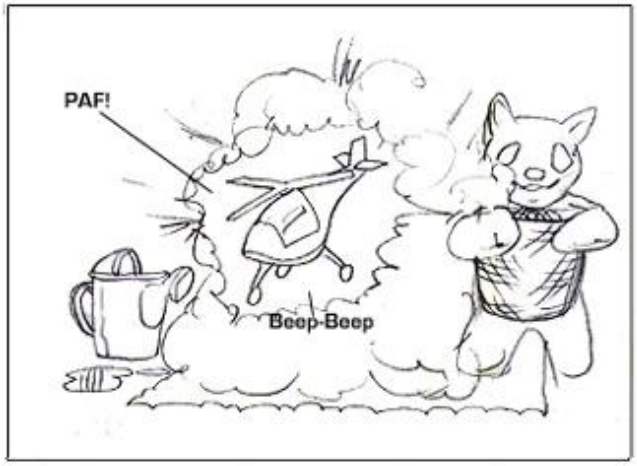
1 Scamper the leopard cub is playing a grouping game. "Hi! Let's see if we can grow some special plants."



2 "Pick up the watering can and water the garden." These plants are special because they're HOUSE plants. Hee hee.



3 "Wow look at 'em grow. But look, there's some funny weeds growing too!" How many plants look like this one?"



4 "You did great! That was the right number. Now I can go prepare them for dinner!!! You win a great prize!" See if you can find it in Duploland."

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